

~~to the existence of these wavelengths simultaneously, or over a time interval having multiple wavelengths, the absolute position of the target can be determined. If the light beam has a single wavelength, the relative position of the target can be determined.~~

CLAIM REJECTIONS

35 U.S.C. §102 Rejections

Claims 1-5, 7-12, 15, and 17-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Lau et al (US Patent 4,714,339). The Applicants have reviewed the cited reference and respectfully submit that the present invention as is set forth in Claims 1-5, 7-12, 15, and 17-25 are not anticipated or rendered obvious by Lau et al (US Patent 4,714,339).

Examiner is respectfully directed to currently amended independent Claim 1, which recites that an embodiment of the present invention is directed to an optical position-tracking system comprising:

an optical device for generating an incident light beam and a reference light beam from a light beam, wherein said light beam has a plurality of wavelengths; and
a light beam steering device for sweeping said incident light beam through an angular range to cause a reflection of said incident light beam by a target, wherein

said reflection of said incident light beam is directed to interfere with said reference light beam to form an interference light beam, wherein an absolute position of said target is determined using an interferometric technique utilizing said plurality of wavelengths of said light beam and an angular value of said incident light beam and said interference light beam, and wherein said angular value depends on said reflection.

Currently amended independent Claim 9 and currently amended independent Claim 19 recite limitations similar to those of independent currently amended independent Claim 1. Claims 2, 5, 7, and 8; Claims 10, 15, 17, and 18; and Claims 22-25 depend from currently amended independent Claim 1, currently amended independent Claim 9, and currently amended independent Claim 19 respectively and recite further limitations of the claimed invention.

Applicant respectfully submits that Lau does not teach or suggest, either expressly or inherently, “an absolute position of said target is determined using an interferometric technique utilizing said plurality of wavelengths of said light beam and an angular value of said incident light beam and said interference light beam, and wherein said angular value depends on said reflection;” as is recited in currently amended independent Claim 1.

Lau teaches a tracking system for measuring at least the spatial coordinates of a target and possibly the angular orientation of the target. Lau teaches that an interferometric detector can thus detect changes in the length L of the beam between the tracking mirror and the target mirror but an initial absolute distance calibration is

necessary in order to obtain the original length L_0 (column 4, lines 4-5). In contrast, in the embodiment of the Applicant's invention set forth in Applicant's Claim 1, an absolute position of the target can be determined without an initial absolute distance calibration by using an interferometric technique utilizing the plurality of wavelengths of the light beam and an angular value of the incident light beam and the interference light beam, wherein the light beam has a plurality of wavelengths.

It should be appreciated that the teachings of Lau reference is primarily concerned with using an interferometric detector to measure changes in the length L of a beam. In fact, nowhere in the Lau reference is it taught or suggested that an interferometric detector is used to measure the absolute length L of a beam without initial absolute distance calibration. Consequently, the Lau reference does not anticipate or render obvious the embodiments of the Applicant's inventions as are recited in currently amended independent Claims 1, 9, and 19.

Therefore, Applicant respectfully submit that Lau does not anticipate or render obvious the present claimed invention as recited in currently amended independent Claims 1, 9, and 19, and as such, Claims 1, 9, and 19 are in condition for allowance. Accordingly, Applicant also respectfully submit that Lau does not anticipate or render obvious the present claimed invention as is recited in Claims 2, 5, 7, 8 dependent on Claim 1, Claims 10, 15, 17, 18 dependent on Claim 9, and Claims 22-25 dependent on Claim 19. Further, Claims 2, 5, 7, 8, 10, 15, 17, 18, and 22-25 overcome the Examiner's basis for rejection under 35 U.S.C. 102 as being dependent on allowable

base claims.

35 U.S.C. §103 Rejections

Claims 6, 13, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lau. Applicant respectfully submits that the embodiments of the present invention as recited in Claims 6, 13, 14, and 16 are neither anticipated nor rendered obvious by Lau.

Examiner is respectfully directed to currently amended independent Claim 1, which recites that an embodiment of the present invention is directed to an optical position-tracking system comprising:

an optical device for generating an incident light beam and a reference light beam from a light beam, wherein said light beam has a plurality of wavelengths; and
a light beam steering device for sweeping said incident light beam through an angular range to cause a reflection of said incident light beam by a target, wherein said reflection of said incident light beam is directed to interfere with said reference light beam to form an interference light beam, wherein an absolute position of said target is determined using an interferometric technique utilizing said plurality of wavelengths of said light beam and an angular value of said incident light beam and said interference light beam, and wherein said angular value depends on said reflection.

Currently amended independent Claim 9 recites limitations similar to those of independent currently amended independent Claim 1. Claim 6, and Claims 13, 14, and 16 depend from currently amended independent Claim 1 and currently amended independent Claim 9 respectively and recite further limitations of the claimed invention.

Applicant respectfully submits that Lau does not anticipate or render obvious, “an absolute position of said target is determined using an interferometric technique utilizing said plurality of wavelengths of said light beam and an angular value of said incident light beam and said interference light beam, and wherein said angular value depends on said reflection;” as is recited in currently amended independent Claim 1.

In order to meet the limitations of Claim 1 a reference (or combination of references) must teach or suggest, either expressly or inherently, in addition to other limitations on Claim 1: an absolute position of the target is determined using an interferometric technique utilizing the plurality of wavelengths of the light beam and an angular value of the incident light beam and the interference light beam, and wherein the angular value depends on the reflection.

By contrast, Lau only teaches a tracking system for measuring at least the spatial coordinates of a target and possibly the angular orientation of the target. Lau teaches that an interferometric detector can thus detect changes in the length L of the beam between the tracking mirror and the target mirror but an initial absolute distance calibration is necessary in order to obtain the original length L_0 . (column 4, lines 4-5)

To draw a distinction, in the embodiment of the Applicant’s invention set forth in Applicant’s Claim 1, an absolute position of the target can be determined without an initial absolute distance calibration by using an interferometric technique utilizing the plurality of wavelengths of the light beam and an angular value of the incident

light beam and the interference light beam, wherein the light beam has a plurality of wavelengths.

Nowhere in the Lau reference is there disclosed an interferometric detector can measure the absolute length L of the beam between the tracking mirror and the target mirror without an initial absolute distance calibration to obtain the original length L_0 .

It should be appreciated that the teachings of Lau reference is primarily concerned with using an interferometric detector to measure changes in the length L of a beam. In fact, nowhere in the Lau reference is it taught or suggested that an interferometric detector is used to measure the absolute length L of a beam without initial absolute distance calibration. Consequently, the Lau reference does not anticipate or render obvious the embodiments of the Applicant's inventions as is recited in currently amended independent Claims 1.

Consequently, Lau does not show or suggest the Applicant's invention as is set forth in Claim 1 and 9. Therefore, the Applicants respectfully submit that Lau does not anticipate or render obvious the present claimed invention as recited in Claim 1 and 9, and as such, Claim 1 and 9 overcomes the Examiner's basis for rejection under 35 USC 103(a) and are in condition for allowance.

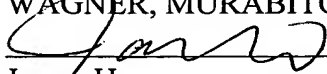
Accordingly, Applicant also respectfully submit that Lau does not anticipate or render obvious the present claimed invention as is recited in Claim 6 dependent on Claim 1, Claims 13, 14, and 16 dependent on Claim 9, and Claims 6, 13, 14, and 16 overcome the Examiner's basis for rejection under 35 U.S.C. 102 as being dependent on allowable base claims.

SUMMARY

In view of the foregoing remarks, the Applicant respectfully submits that the pending claims in the instant patent application are in condition for allowance. The Applicant respectfully requests reconsideration of the Application and allowance of the pending claims.

If the Examiner determines the prompt allowance of these claims could be facilitated by a telephone conference, the Examiner is invited to contact John Wagner at the below listed phone number.

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